Partnerships For Innovation: Accelerating Innovation Research–Technology Translation

PFI:AIR–TT

(Solicitation NSF 14–569)

Barbara H. Kenny, Ph.D.
Program Director
Industrial Innovation and Partnerships Division
Engineering Directorate
National Science Foundation
July 17, 2014

Dial In: 1–800–988–9577
Audience passcode: PFI AIR

Welcome and Introduction

- Structure of webinar (1-2pm)
  - PFI:AIR-TT briefing (20-30 min)
  - followed by Q&A
  - Operator assisted
- Website for this webinar and more information about the PFI:AIR-TT program:

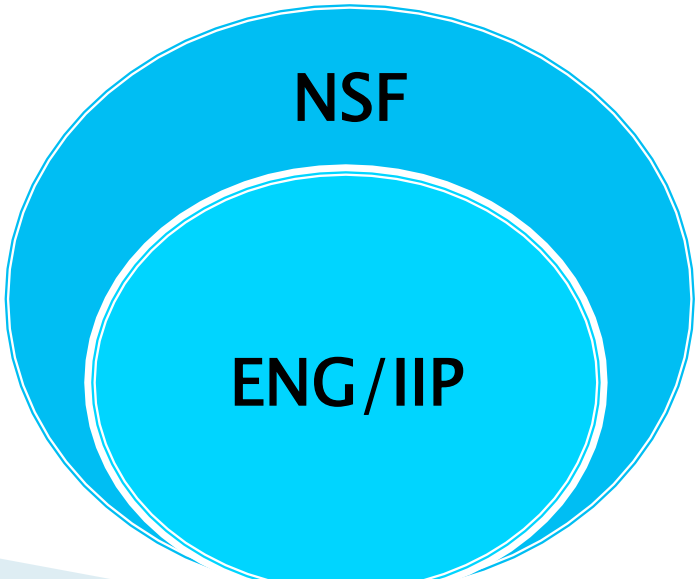
  http://www.nsf.gov/eng/iip/pfi/air-tt.jsp
- Questions? bkenny@nsf.gov

Big Picture: NSF Goals

Strategic Goals	Transform the Frontiers of Science and Engineering	Stimulate Innovation and Address Societal Needs	Excel as a Federal Science Agency
Objectives	• Invest in fundamental research to ensure significant continuing advances across science, engineering, and education. • Integrate education and research to support development of a diverse STEM workforce with cutting-edge capabilities. • Provide world-class research infrastructure to enable major scientific advances.	**• Strengthen the links between fundamental research and societal needs through investments and partnerships.** • Build the capacity of the Nation to address societal challenges using a suite of formal, informal, and broadly available STEM educational mechanisms.	• Build an increasingly diverse, engaged, and high-performing workforce by fostering excellence in recruitment, training, leadership, and management of human capital. • Use effective methods and innovative solutions to achieve excellence in accomplishing the agency's mission.

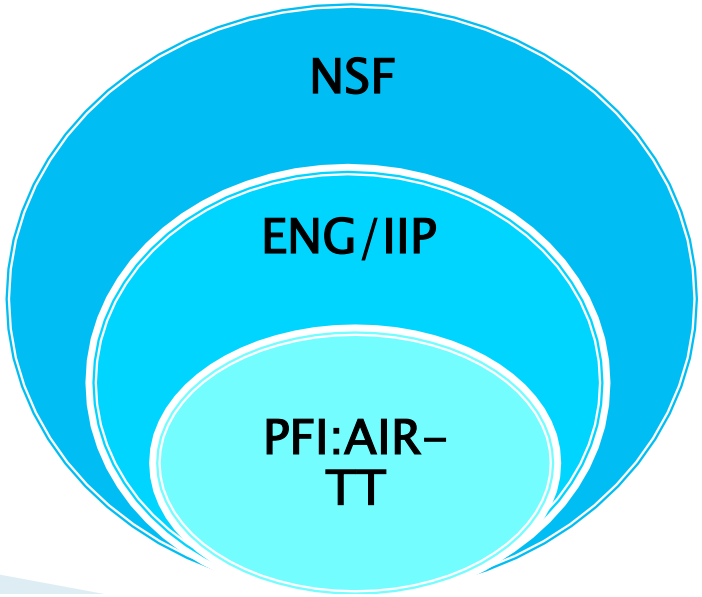
Engineering Directorate: Division of Industrial Innovation and Partnerships

Strategic Goal	**Driving the expansion of our nation's innovation capacity**		
Objectives	•**Research**: Support innovation research that builds on fundamental research discoveries that exhibit potential for societal and economic impact.	•**Partnerships:** Encourage research partnerships between academia and industry.	•**People**: Offer hands-on experience in the innovation process to current and future entrepreneurs and innovators.

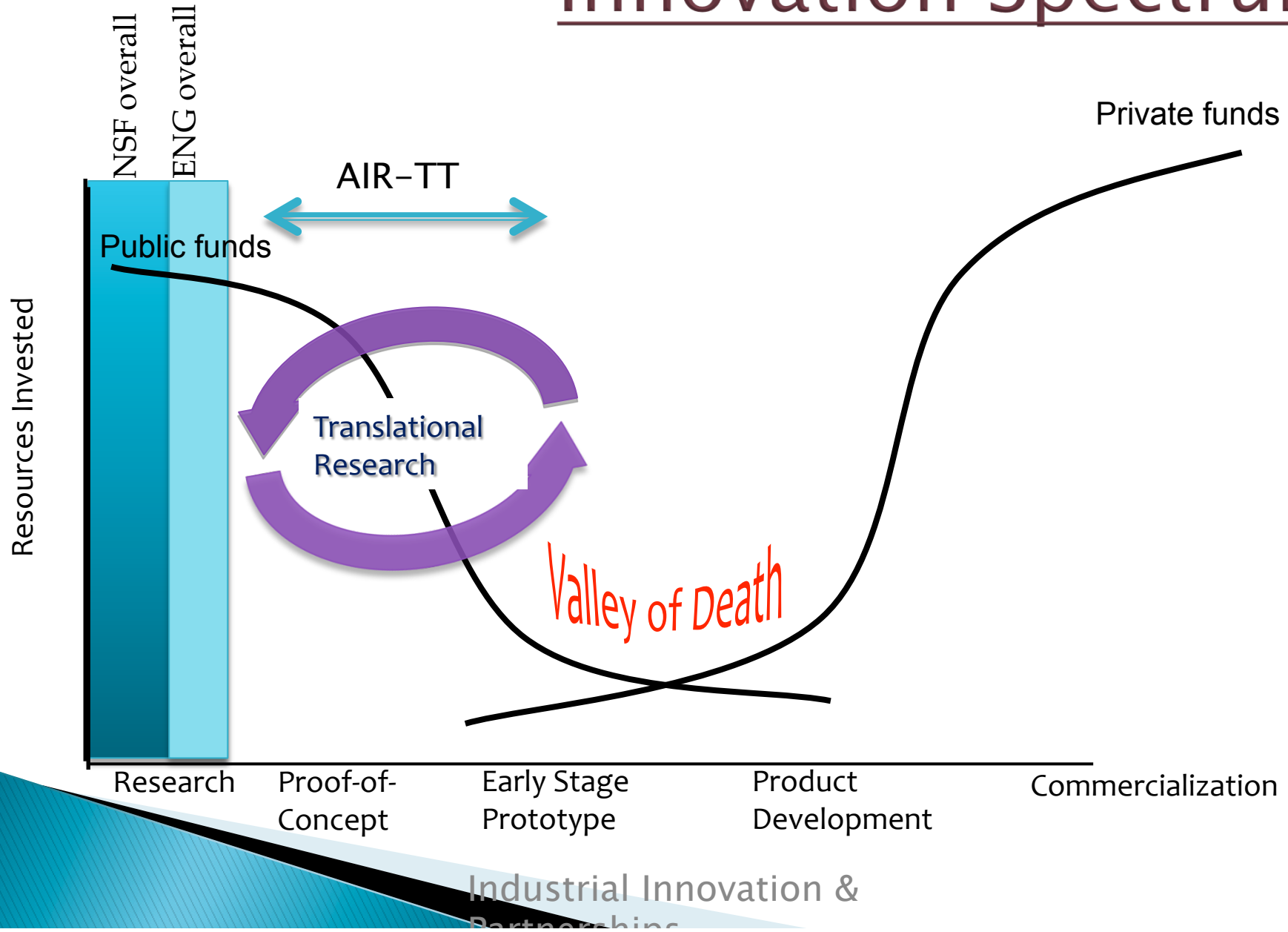


PFI: Accelerating Innovation Research–Technology Translation

Strategic Goal	Accelerate the derivation of societal and economic benefit from new knowledge created in the discovery process.		
Objectives	•**Research:** Leverage NSF research award investments to accelerate the translation of research discoveries toward commercial realities.	•**Partnerships:** Promote connections between faculty and persons with a use-oriented perspective	•**People**: Engage students and faculty in entrepreneurial/ innovative/market-oriented thinking.



Innovation Spectrum



PFI:AIR–TT Project Goals

1. Technical

AIR domain

Basic Research

Proof-of-Concept

Early Stage Prototype

Technology/knowledge gaps

NSF-Funded Research Result

Successful Commercialization

2. Commercial

Preliminary understanding of market need, potential competitive advantage, IP landscape, regulatory hurdles. Strategy toward commercialization.

Enhanced commercial understanding, refined strategy toward commercialization

3. Educational

Student innovation/entrepreneurial experiences

PFI:AIR–TT Project Goals

- Technical: Advancement of the state of knowledge of the underlying research discovery toward commercial application via:
  - Proof-of-Concept
    - Realization of a certain method or idea to ascertain its scientific or technological parameters with results sufficient to determine applicability of the innovation to the potential application area

    –or–
  - Prototype
    - A functional laboratory demonstration of the proof-of-concept that addresses a relevant application so that performance parameters, design criteria, and functional limitations for scalability can be understood.

PFI:AIR–TT Project Goals

- Commercial
  - Predominance of effort is expected to be in the achievement of the technical goals; however, progress should be made in
    - Understanding potential market need, competing technologies, and impact of proposed innovation
    - Understanding necessary intellectual property protection and freedom to operate issues
    - Understanding relevant regulatory issues
- Educational
  - Participants should demonstrate an enhanced knowledge of innovation, technology commercialization and/or entrepreneurship by the end of the award.

Key Facts 14-569

- Two windows

LOI required	Full Proposal
Sept. 2, 2014	October 2, 2104
March 13, 2015	April 14, 2015

- PI/co-PI requirements:
  - PI must be faculty member at U.S. academic institution
  - Lineage: Pi or co-PI must have had an NSF *research* award that ended no more than 6-years prior *that is the basis* for the proposed translational research work.
  - There must be at least one other individual involved in the work (co-PI, Senior Personnel, or Other Personnel) with explicit business experience.
  - PI/co-PI may submit only one proposal *per year*

Key Facts: Budget

- Up to $200K for up to 18 months
- Up to 50% sub-award is allowed (not required) in order to augment capabilities of the submitting institution
  - If sub-award is to foreign entity, clearly justify the need
  - Not intended to support large corporations' research and development activities
  - Cooperative Research Agreement required upon notification of award
- "Collaborative proposals" are not allowed.
- PFI:AIR—TT does not fund "basic" research without a use-inspired or technology translation objective and output

Key Facts: Project Narrative (1)

- Overview and Motivation (1-2 pages)
  - What is your innovation and why would anyone want it? How is it derived from prior NSF support? What is the output of the award (proof-of-concept or prototype)? What are the technology gaps to be addressed?
- Market Opportunity and Intellectual Property (3-4 pgs)
  - Describe the broader impacts in terms of societal, economic or commercial benefit. Discuss the results of preliminary market research. What are the market needs and what makes the innovation competitive? What is the status of the intellectual property?

Key Facts: Project Narrative (2)

- Technical Challenges and Research Plan (5-7 pages)
  - What is the current state of the art and what are the technology gaps to be overcome? What is the research plan to address the identified gaps? Discuss the project plan and milestones.
- Team (1-2 pages)
  - Describe the team members and their roles/value added to the project. Identify the person with the business experience and how they will help achieve the goals of the project.
- Strategy toward Commercialization (1-2 pages)
  - Describe the overall strategy of a path toward commercialization
- Training and Involvement of Students (1-2 pages)
  - How will the students gain knowledge of innovation and technology commercialization beyond the usual research experience? How will the work help develop a diverse and globally competitive workforce?

Key Facts: Supplemental Documents

- Milestone Chart with specific tasks and deliverables
- List of prior NSF awards with lineage to proposed work
- Letters of Commitment (if applicable)
- Letters of Support
  - Encouraged, not required. Maximum of three.
- Letter of Cooperative Agreement (if applicable)
- Data Management Plan
- Postdoctoral Research Mentoring plan (if applicable)
- Letters regarding use of human or animal subjects (if applicable)

Additional Review Criteria

- Strength of discussion of market need and how the innovation has competitive potential.
- Merit of the research plan to translate the existing research discovery to proof-of-concept or prototype.
  - Demonstrated understanding of technology/knowledge gaps.
- Suitability of proposed team to successfully complete the proposed work
- Quality of the preliminary patent search and discussion
- Quality of strategy for a path toward commercialization.
- Quality of plan for involvement of students
  - Discussion of how proposed effort will enhance knowledge of innovation.

Tips

- Reviewers
  - Many employed by industry with advanced technical degrees and expertise
  - Some are faculty members or have had faculty experience
  - Most have experience as SBIR/STTR program reviewers
- Types of questions they ask:
  - How well does the proposer understand the intended market and the research issues to be addressed for the technology to be successful in that market space?
  - Does the proposer have the necessary intellectual property protection in place or plan to obtain that protection?
  - Does the proposer have an initial, viable strategy to move from proof-of-concept or prototype toward commercialization?

Thank you for your interest in the PFI:AIR-Technology Translation program. A copy of the webinar will be available at http://www.nsf.gov/eng/iip/pfi/air-tt.jsp

Additional questions, please contact Barbara Kenny at bkenny@nsf.gov

Questions?

Press *1 to enter queue

*2 to withdraw from queue